DOCUMENT RESUME

ED 275 348 IR 051 696

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TITLE Microcomputers in the Anesthesia Library.
PUB DATE 18 Oct 84
NOTE 10p.; Paper presented at the Conference on Microcomputers in Anesthesia (5th, Biloxi, MS, October 18, 1984).
PUB TYPE Viewpoints (120) -- Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Bibliographic Utilities; *Communications; *Database Management Systems; Electronic Mail; Higher Education; Information Transfer; *Medical Libraries; *Microcomputers; Online Catalogs; Online Searching

ABSTRACT

The combination of computer technology and library operation is helping to alleviate such library problems as escalating costs, increasing collection size, deteriorating materials, unwieldy arrangement schemes, poor subject control, and the acquisition and processing of large numbers of rarely used documents. Small special libraries such as anesthesia libraries find microcomputers especially useful for communications and data control. Access to online databases through vendors such as DIALOG and MEDLARS allows efficient searching of medical and related literature in ways not possible in printed indexes. Other communications uses for anesthesia library microcomputers could include electronic mail, electronic networking, and the storage, transmission, and/or accessing of electronic journals. Data control applications include various indexing functions and the construction of online catalogs. References are provided. (KM)

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MICROCOMPUTERS IN THE ANESTHESIA LIBRARY

A.J. Wright

Presented at the Microcomputers in Anesthesia V conference, Biloxi, Mississippi, October 18, 1984.

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MICROCOMPUTERS IN THE ANESTHESIA LIBRARY

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Those of you who follow the avian adventures in the comic strip "Shoe" might remember a particular episode that ran a couple of weeks ago. The Perfesser is seated in front of his perpetually overloaded desk talking to sixth-grade student Skyler. The Perfesser observes, "Y'know, they were right...the computer has really revolutionized paperwork in this country..." And Skyler asks, wisely, "How is this any different than it ever was?" The Perfesser, always observant, replies, "Well, now all the trash on my desk has these little holes in the edges."

This cartoon might be just mildly amusing if not for an article published in the April Bulletin of the Medical Library Association. A small study done at the Rush University Library in Chicago seems to indicate that although electronic means of communication are increasing, the use of paper is also increasing. (1) This "use of paper" increase subtlely contrasts with a study published last year that indicates a leveling off or slight decline in the number of words in print. (2) Perhaps computers are helping us generate more paper faster and faster.

Rising paper consumption is only a minor problem of the many confronting today's libraries. As background to microcomputers in the anesthesia library, I want to touch briefly on those problems and how computer technology is being used to solve them.

Microcomputers, which are rapidly becoming ubiquitous in libraries of all sizes, were preceded by almost two decades of large computer systems utilization. Mainframes and minicomputers have allowed libraries to automate many technical service functions, such as the generation of cards for the card catalog. Other areas in which automation has occurred are control of circulation records and, more recently, the creation of online card catalogs to compliment or replace the

traditional card catalog. Large computer systems are also allowing more efficient cooperative efforts among libraries in such areas as interlibrary loan of documents and the creation and maintenance of tools like union lists of serials, which contain journal holdings for a group of libraries, often on a regional basis.

This computer usage by libraries comes at a time of increasing entropy at the level of the local library. The costs of both labor and collection materials have skyrocketed over the past two decades. This trend has been exacerbated by tremendous growth in book and journal publication, a concern that is hardly new, and in fact resurfaces with some regularity. (3-5) The result has been larger and larger collections that are increasingly expensive to maintain, contain less and less of the published literature and are more and more difficult for patrons to use effectively. As if these problems weren't enough, the printed materials that librarians have acquired during this century are physically deteriorating at a rapid rate. Electronic automation has become an important element in solving these problems in both the individual library and at cooperative levels.

In a recent essay entitled apocalyptically "The End of Libraries," James Thompson delineates many of the predicaments in which libraries currently find themselves. (6) Escalating costs, increasing collection size and deteriorating materials have already been mentioned. Other library deficiencies pointed out by Thompson include unwieldy arrangement schemes (i.e., Library of Congress and Dewey), poor subject control and the acquisition and processing of large numbers of documents that are rarely if ever used.

The combination of computer technology and library cooperation are, as Thompson says they must, slowly pointing a way out of this impasse. Bibliographic utilities such as OCLC and DIALOG now have millions of document surrogates---

bibliographic citations, often with abstracts---available for searching almost around the clock via dumb terminal or microcomputer. These utilities, which are rapidly becoming de facto national databases, also support document delivery systems and other databases that go beyond surrogates by making the full text available for searching. Thus the universe of published material is receiving better intellectual and physical control; and the efficiency and speed of access is improving.

At the risk of sounding like a voice of doom, I have summarized some of the problematic issues facing libraries because they affect the operating quality of any library, even at the departmental level. A special library, such as that of an anesthesia department, is frequently dependent on other, larger libraries for access to materials which it does not collect. By using microcomputers, any special library becomes in effect an electronic branch of larger libraries and the giant information utilities. Problems like the growth of the medical literature, subject control and so forth can then be approached rapidly from the desktop or the briefcase. Two areas in which microcomputers can be especially useful in the anesthesia library are communications and data control.

Communications via microcomputer allow the anesthesia library to access mainframe power at larger institutions. Database vendors such as the National Library of Medicine's MEDLARS system and the privately-owned DIALOG can be tapped for bibliographic information that may be printed while online or downloaded to disk storage and retrieved as desired. (7)

This microcomputer application allows efficient searching of the vast medical and related literature in ways not possible in printed indexes. The largest

of NLM's MEDLARS databases is MEDLINE, which currently contains some four and a half million records for articles published since 1966. Another MEDLARS database, CATLINE, is in effect NLM's online card catalog and contains some 550,000 records that include almost all of that library's monographic holdings. Within these databases great flexibility is possible in the manipulation of subject headings and words and phrases in titles and abstracts.

DIALOG offers access to even more databases, most of which are unrelated to medicine. However, DIALOG does have MEDLINE and the Excerpta Medica databases. In addition, DIALOG in March 1984 loaded Drug Information Fulltext, which is based on the American Hospital Formulary and other print sources. (8) This trend toward complete text databases will no doubt accelerate in the near future, now that bibliographic information is under better control.

Access to these onlines databases is not limited to professional searchers such as librarians. The National Library of Medicine has begun a program to train end users - physicians and other health professionals - to do their own searching. DIALOG has a program for home computer owners called Knowledge Index; one of its databases is MEDLINE.

Other communications uses for the microcomputer in the anesthesia library can be envisioned. Appropriate software can be traded via up- or downloading to and from the remote computers of information utilities like The Source and Compuserve. (9) These same utilities or others can be used for electronic mail or to network colleagues and co-authors based at different institutions. A prototype electronic conferencing network, the Electronic Information Exchange System, has been operating successfully at the New Jersey Institute of Technology for a number

of years. Several additional computer-moderated conferences are also in operation. (10) The "bulletin boards" run by numerous computer clubs are a cruder form of this electronic communication, but can be used in much the same manner. F.W. Lancaster, a librarian who writes extensively on electronic applications in libraries, has labeled this kind of activity "on-line intellectual communities." (11) Another author, Michael Buckingham, calls it "electronic debating chambers." (12) Such electronic networking of investigators and clinicians would add a dynamic new element to the process of scientific communication.

A more futuristic use of the anesthesia library's micro is the storage, transmission and/or accessing of electronic journals. (13, 14) This concept is still in the embryonic stage and most existing electronic journals are informal ones. Electronic versions of some printed journals, such as IRCS Medical Science, are already available; Lancet and the British Medical Journal are expected to be available this year. (12) Possible problem areas, such as the refereeing process, must be addressed before the true electronic journal - one that exists only in electronic form - can be fully developed. However, a microcomputer in the anesthesia library could certainly be used to electronically distribute departmental and professional society newsletters, current awareness publications and so forth.

A second broad category of microcomputer applications in the anesthesia library is data control. File management software is plentiful and can be adapted to numerous uses. A record of journal holdings can be maintained and updated as new issues or back issues are acquired. An index to reprints or vertical file materials can be created. "Ready reference" files such as those of names and addresses can also be indexed.

A more involved use of data control is the construction of an online card catalog. If the library's hardware includes enough disk storage, and because a department's library is relatively small, this database can be greatly expanded beyond the traditional card catalog. In addition to the information usually found, significant terms can be stripped from monographic tables of contents to give much deeper subject access to the book collection than larger libraries can provide. (15, 16)

The National Library of Medicine is currently offering on magnetic tape predetermined or customized subsets of its databases. Future plans call for the availability of these subsets on floppy disks as well. (17) Acquisition of these files would allow the anesthesia department to build databases tailored for its own use.

The library of the Department of Anesthesiology, University of Alabama in Birmingham, acquired a microcomputer system earlier this year. The library has already begun to implement some of the uses just described, in addition to others.

Bibliographic searching of the National Library of Medicine's MEDLARS system and of DIALOG is now performed on the library's IBM. Indexing has started on the department's collection of closed circuit anesthesia literature, and a database containing information on grants currently available to anesthesiologists is also under construction. Projects now being considered for future implementation are an online card catalog and an index to vertical file materials.

This overview of the microcomputer in the anesthesia library has covered a few possible applications. Most of those applications are really different approachs to the problems facing libraries that were outlined earlier. Although I have discussed this technology in the context of a departmental library, many of these

ideas can be adapted to the personal library by individuals owning microcomputers. The primary limitation in developing what has been described as the "local electronic library" is our imaginations. (18)

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